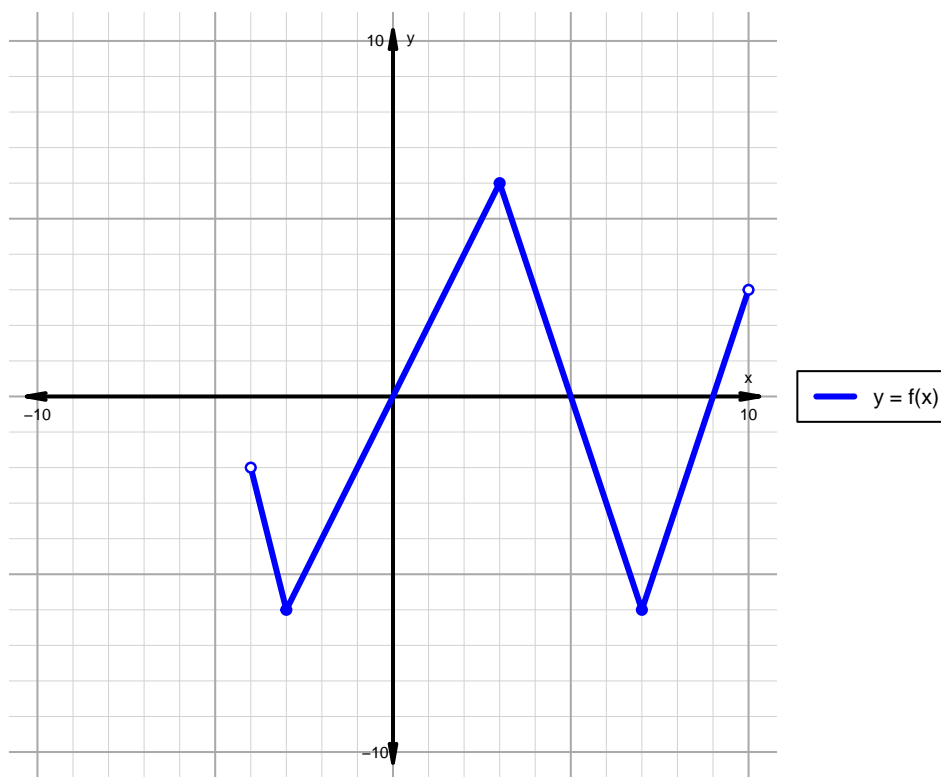


Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Intervals, Transformations, and Slope Solution (version 16)**

1. The function  $f$  is graphed below.

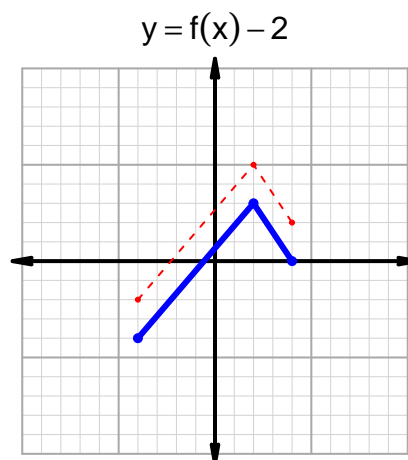
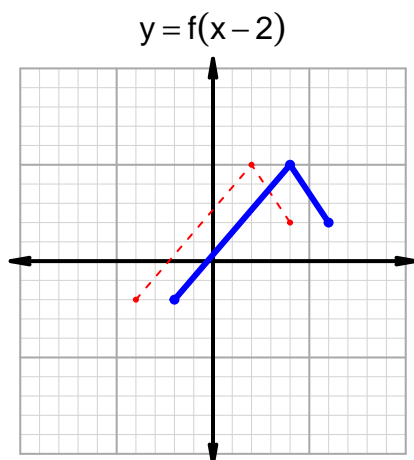
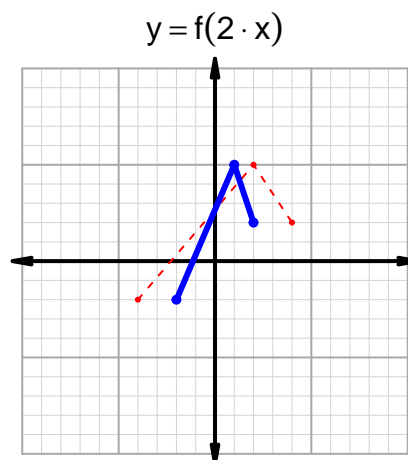
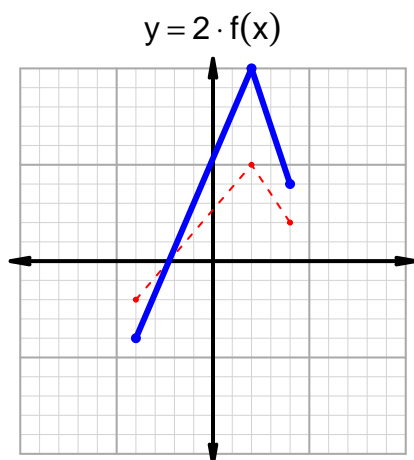


Indicate the following intervals using interval notation. Remember, you can use  $\cup$  between two intervals to indicate the union. Except for range, all intervals will indicate  $x$  values; this is standard.

Feature	Where
Positive	$(0, 5) \cup (9, 10)$
Negative	$(-4, 0) \cup (5, 9)$
Increasing	$(-3, 3) \cup (7, 10)$
Decreasing	$(-4, -3) \cup (3, 7)$
Domain	$(-4, 10)$
Range	$(-6, 6)$

## Intervals, Transformations, and Slope Solution (version 16)

2. In the four graphs below,  $y = f(x)$  is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.



3. Let function  $g$  be defined by the table below. Use the formula  $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$  to find the average rate of change between  $x_1 = 31$  and  $x_2 = 73$ . Express your answer as a reduced fraction.

$x$	$g(x)$
16	31
31	70
70	73
73	16

$$\frac{f(73) - f(31)}{73 - 31} = \frac{16 - 70}{73 - 31} = \frac{-54}{42}$$

The greatest common factor of -54 and 42 is 6. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-9}{7}$$